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File Date:

Applicant:

09/142,524

September 9, Sone et al.

> POSITIVITY INDEX (MEAN STIMULATION INDEX x APPEARANCE FREQUENCY (%)) APPEARANCE FREQUENCY (%) MEAN STIMULATION INDEX Cry j 1 PEPTIDE 1200 300 600 900 NO. **POSITION AMINO ACID** SEQUENCE 1-353 12.6 100.0 Cryj1 DNPIDSCWRGDSNWA SCWRGDSNWAQNRMK 4.0 5.0 10.9 1- 15 6- 20 11- 35 21- 35 26- 40 31- 55 46- 67 46- 67 46- 75 66- 75 66- 75 86- 100 91-115 116-125 116-135 121-135 121-135 121-135 121-135 121-135 121-135 121-135 11.1 22.2 5.6 61.1 5.6 0.0 0.0 16.7 0.0 5.6 0.0 1 2 3 4 5 6 7 8 9 DSNWAONRMKLADCA ONRMKLADCAVGFGS 6.1 QNRMKLADCAVGFGS
> LADCAVGFGSSTMGG
> VGFGSSTMGGKGGDL
> STMGGKGGDLYTVTN
> KGGDLYTVTNSDDDP
> YTVTNSDDDPVNPAP
> SDDDPVNPAPGTLRY
> VNPAPGTLRYGATRD
> GTLRYGATRDBUWITPSGN 4.0 <2 <2 <3.2 <2 <3.0 <2 10 11 12 13 4.3 8.9 5.6 16.7 GATRORPLWIIFSGN 14 15 4.4 RPLWIIFSGNMNIKL 50.0 **IFSGNMNIKLKMPMY** 33.3 IFSGNMNIKLKMPMY
> MNIKLKMPMYIAGYK
> MNIKLKMPMYIAGYK
> KMPMYIAGYKTFDGR
> IAGYKTFDGRGAQVY
> TFDGRGAQVYIGNGG
> GAQVYIGNGGFOVFIKRVSN
> PCVFIKRVSNVIIHG
> KRVSNVIIHGLHLYG
> VIIHGLHLYGCSTSVIGNVI 3.4 4.7 5.9 5.4 7.6 11.1 61.1 27.8 50.0 16.7 0.0 72.2 <2 8.0 55.6 33.3 6.4 8.1 VIIHGHLIGCSTSV LHLYGCSTSVLGNVL CSTSVLGNVLINESF LGNVLINESFGVEPV INESFGVEPVHPQDG GVEPVHPQDGDALTL HPQDGDALTLRTATN DALTLRTATNIWIDH 11.1 0.0 22.2 0.0 0.0 27.8 38.9 6.1 <2 7.1 44.4 5.6 0.0 0.0 RTATNIWIDHNSFSN 33 **IWIDHNSFSNSSDGL** INIDHNSFSNSSDGL NSFSNSSDGLVDVTL SSDGLVDVTLSSTGV VDVTLSSTGVTISNN SSTGVTISNNLFFNH TISNNLFFNHHKVML LFFNHHKVMLLGHDD 34 35 36 166-180 171-185 176-195 176-195 181-205 181-225 196-215 201-2225 201-2235 2216-2235 2216-2235 2221-225 2216-225 2216-225 2216-225 2216-225 2216-225 2216-225 2216-225 2216-235 2216-2275 2216-2275 2216-2285 2216-2275 2216-2335 2216-2335 2216-2335 2216-2335 2216-2335 2216-3335 2316-35 2316-35 2316-35 2316-35 2316-35 2316-35 2316-35 2316-35 2316-35 2316-35 2 37 38 0.0 39 40 41 42 38.9 16.7 HKVMLLGHDDAYSDD LGHDDAYSDDKSMKV 11.1 138.9 11.1 11.9 11.9 11.9 11.2 12.3 12.3 12.3 16.7 16.7 16.7 16.3 AYSDDKSMKVTVAFN
> AYSDDKSMKVTVAFN
> KSMKVTVAFNOFGPN
> TVAFNOFGPNCGQRM
> OFGPNCGQRMPRARY
> CGQRMPRARYGLVHV
> PRARYGLVHVANNNY
> GLVHVANNNYDPWTI 44467 44467 55555555556666664 GLVHVANNNIDFWII ANNNYDPWTIYAIGGSSNPT DPWTIYAIGGSSNPT YAIGGSSNPTILSEG SSNPTILSEGNSFTA 4.6 SSNPTILSEGNSFTA ILSEGNSFTAPNESY NSFTAPNESYKKQVT PNESYKKQVTIRIGC KKQVTIRIGCKTSSS IRIGCKTSSSCSNWV KTSSSCSNWVWQSTQ CSNWVWQSTQDVFYN WQSTQDVFYNGAYFV 5.3 4.6 2.7 <2 2.5 2.5 4.0 4.3 4.7 DVFYNGAYFVSSGKY GAYFVSSGKYEGGNI 5.0 5.6 3.9 8.5 11.1 SSGKYEGGNIYTKKE **EGGNIYTKKEAFNVE** 65 66 67 68 27.8 33.3 YTKKEAFNVENGNAT **AFNVENGNATPQLTK** NGNATPOLTKNÄGVL POLTKNÄGVLTCSLS 6.8 44.4 22 4.3 (69) 339-353 TKNAGVLTCSLSKRC 16

FIG. 1

SN: 09/142,524
File Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 2/19

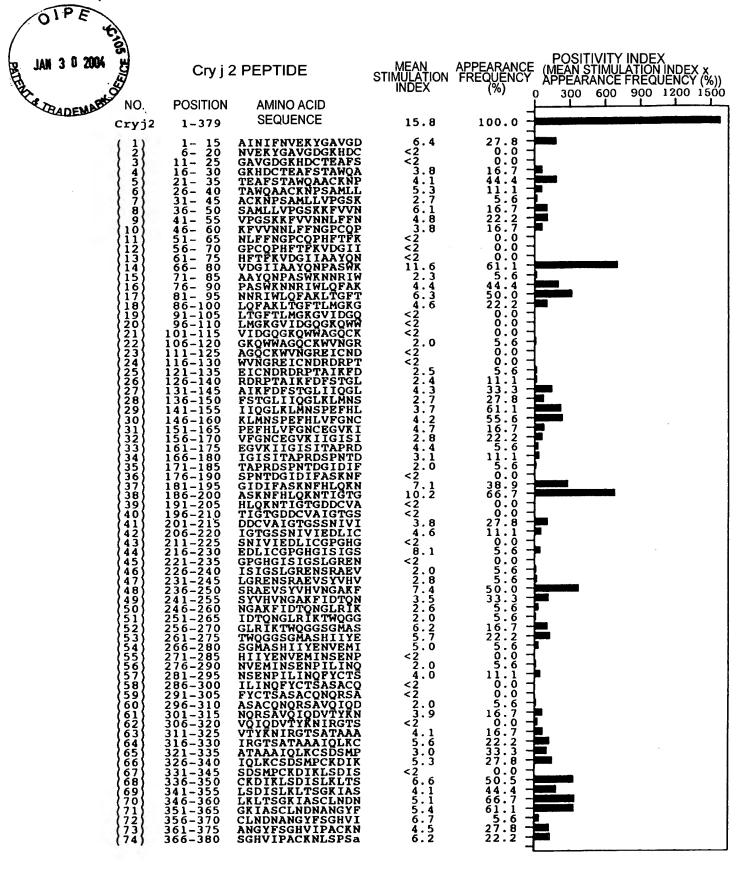


FIG. 2

SN: 09/142,524
File Date: September 9, 1998
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Th TYPE OF T CELL CLONE CAPABLE OF RECOGNIZING Cry j 1

T CELL	EPITOPE SITE	RESTRICTION	LYMPHOKINE PRODUCTION			
CLONE	NO. POSITION	MOLECULE		(pg/ml)		TYPE
			IL-2	IFNγ	IL-4	
PJ4-6	4 16- 30	DQA1*0102 DQB1*0602	<31	1500	334	Th0
PB8-1	4 16- 30	**	<31	<31	814	Th2
PB9-37	13 61- 75	DPA1*0101-DPB1*0501	<31	<31	7760	Th2
PB10-24	13 61- 75	•	39	151	4500	Th2
PJ1-27	19 91-105	DQ	32	1220	224	Th0
PB3-27	22 106-120	DRB5*0101	250	332	21000	Th2
PB8-2	22 106-120	•	190	2110	5709	Th0
PB8-3	22 106-120	н.	<31	1270	10100	Th0
PB9-39	22 106-120		48	51	5120	Th2
PB10-18	22 106-120	u .	410	46	7840	Th2
PJ4-29	22 106-120	u .	4680	14200	6610	Th0
PJ7-9	22 106-120	•	1370	1040	12200	Th2
PJ5-6	30 145-160	DQA1*0102-DQB1*0602	1500	1170	5920	Th0
PJ5-9	30 145-160	••	1720	825	266	Th0
PB11-21	31 151-165	DRB1*0901	4190	>20000	4510	Th0
PB11-24	31 151-165	**	670	11700	1950	Th0
PB6-37	31 151-165	14	<31	<31	49	Th2
PB1-8	39 191-205	DQA1*0102-DQB1*0602	820	188	1760	Th0
PB9-34	39 191-205	DRB1*0901 OR DRB4*0101	<31	86	1680	Th2
PB2-14	43 211-225	DPA1*0101-DPB1*0501	<31	376	2320	Th0
PB7-2	43 211-225	11	84	2740	2080	Th0
PB8-32	43 211-225	**	<31	4870	1840	Th0
PB8-34	43 211-225	**	78	14800	3040	Th0
PB11-23	43 211-225	**	<31	3990	1260	Th0
PB11-26	43 211-225	**	32	1100	6520	Th0
PB4-20	43 211-225		<31	<31	133	Th2
PB10-4	43 211-225	H .	<31	<31	4170	Th2
PB8-4	51 251-265	DQA1*0102-DQB1*0602	44	36	4050	Th2
PJ4-20	66 326-340	DQA1*0102-DQB1*0602	560	3080	<32	Thl

<sup>\*</sup> IL-4/IFN-  $\gamma$  > 10 AND IFN-  $\gamma$  /IL-4 > 10 ARE DEFINED TO BE Th2 AND Th1, RESPECTIVELY, AND Th0 MEANS INBETWEEN.

SN: 09/142,524

Pile Date: September 9, 1998

Applicant: Conf.: 2300 4/19

Th TYPE OF T CELL CLONE CAPABLE OF RECOGNIZING Cry j 2

T CELL	EPITOPE SITE	RESTRICTION	LYMPHOKINE PRODUCTION			Th*	
CLONE		D. POSITION	MOLECULE		(pg/ml)		TYPE
				IL-2	IFNγ	IL-4	
PB5-29	4	16- 30	DRB1*0901 OR DRB4*0101	<31	503	97	Th0
PB11-40	4	16- 30		<31	<31	50	Th2
PB14-4	4	16- 30	"	<31	<31	<16	Thp
PB12-33	8	36- 50	DRB1*1501	<31	>8000	<16	Thl
PR2-25	8	36- 50	11	47	<31	977	Th2
PR5-40	8	36- 50	•	1150	1330	355	Th0
PB3-32	14	66- 80	DRB5*0101	<31	<31	323	Th2
PB4-21	14	66- 80	17	<31	109	239	Th0
PB4-22	14	66- 80		<31	483	158	Th0
PC1-8	14	66- 80	**	<31	2710	32	Thl
PR4-20	14	66- 80	H	<31	312	338	Th0
PR3-21	14	66- 80	n	<31	<31	338	Th2
PB13-18	17	76- 90	DPA1*0101-DPB1*0501	<31	3320	231	Thl
PB11-32	17	76- 90	и	138	60	2090	Th2
PR1-20	31	151-165	DRB1*0901	<31	<31	18	Th2
PR4-39	31	151-165	**	<31	<31	<16	Thp
PB14-5	37	181-195	DPA1*0101-DPB1*0201	87	126	469	Th0
PB14-13	37	181-195	n	<31	59	2440	Th2
PB14-34	38	186-200	DRB4*0101	186	420	93	Th0
PC3-40	38	186-200	•	<31	<31	379	Th2
PB5-3	48	236-250	DRB1*1501 OR DRB5*0101	2570	>8000	525	Thl
PR2-34	65	321-335	DRB1*0901	57	1990	464	Th0
PR3-30	66	326-340	DQA1*0102-DQB1*0602	<31	106	<80	Th1
PR5-18	66	326-340	ti.	<31	<31	<16	Thp
PC1-13	68	336-350	DPA1*0202-DPB1*0501	<31	<31	<16	Thp
PB12-8	69	341-355	DQA1*0102-DQB1*0602	<31	3210	<16	Thl
PR5-12	69	341-355	10	<31	<31	2528	Th2
PR2-31	69	341-355		<31	<31	332	Th2
PB14-19	70	346-360	**	<31	3730	<16	Thl
PB13-38	70	346-360	n	<31	2020	<16	Thl

<sup>\*</sup> IL-4/IFN-  $\gamma$  > 10 AND IFN-  $\gamma$  /IL-4 > 10 ARE DEFINED TO BE Th2 AND Th1, RESPECTIVELY, Th0 MEANS INBETWEEN, AND Thp MEANS NOT SHOWING THE PRODUCTION OF LYMPHOKINE.



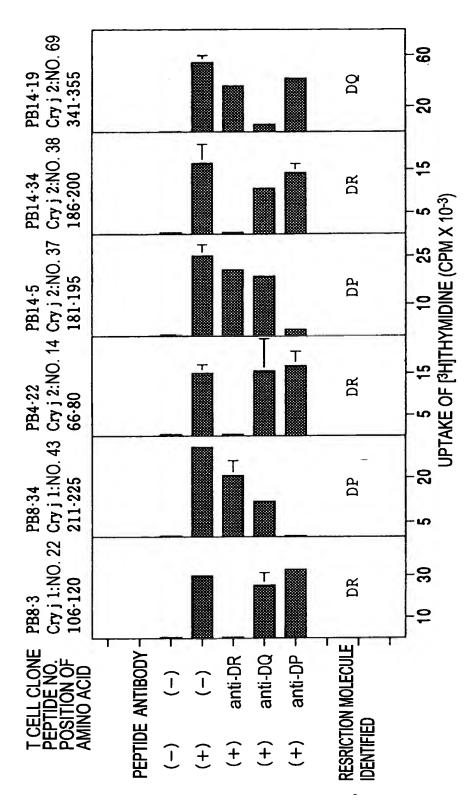


FIG. 5



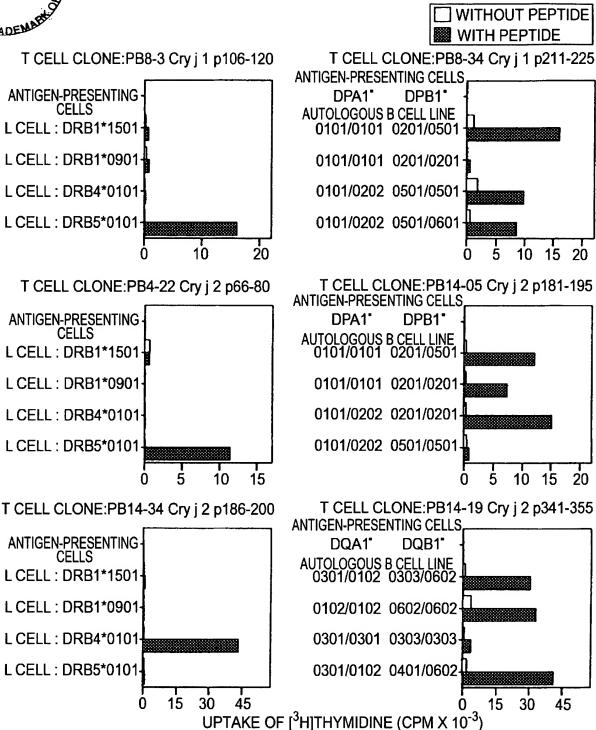


FIG. 6

SN: 09/142,524
File Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 7/19



- a Lys Ser Met Lys Val Thr Val Ala Phe Asn Gln Phe Gly Pro Asn
- b Pro Cys Val Phe Ile Lys Arg Val Ser Asn Val Ile Ile His Gly
- c Val Asp Gly Ile Ile Ala Ala Tyr Gln Asn Pro Ala Ser Trp Lys
- d Gly Ile Asp Ile Phe Ala Ser Lys Asn Phe His Leu Gln Lys Asn Thr Ile Gly Thr Gly
- e Leu Lys Leu Thr Ser Gly Lys Ile Ala Ser Cys Leu Asn Asp Asn Ala Asn Gly Tyr Phe

C.A. 4 3 4 88888 4 က 4 E E 3 3841 C.A. 3716 #4 REACTIVITY OF PEPTIDE COMPOSITIONS (#1 - #6) WITH HUMAN 19E C.A 4 6 6 6 6 4 6 4 48888 m m m 4 m m m က 3 C.A. # ( #2 C.A 3 004000000404040000000044600 3754 C.A. #1 710 314 314 2298 2298 2239 233 233 233 162 106 106 1095 BLANK RABBIT anti-PEPTIDE lgG (SERA) SAMPLE NO. 8 6 2 11 12 13 14 15 ည 9 ~

SN: 09/142,524
Pile Date: September 9, 1998
Applicant: Sone et al.

0 m

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FIG. 8

SN: 09/142,524
File Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 9/19



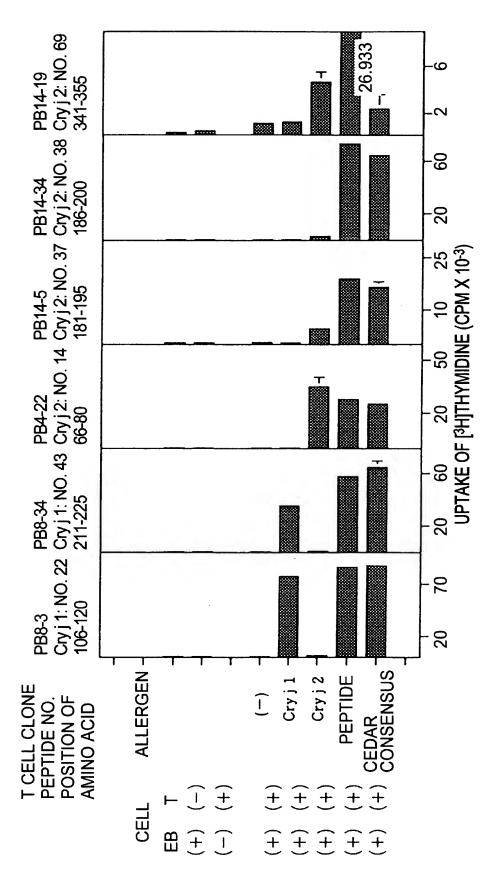
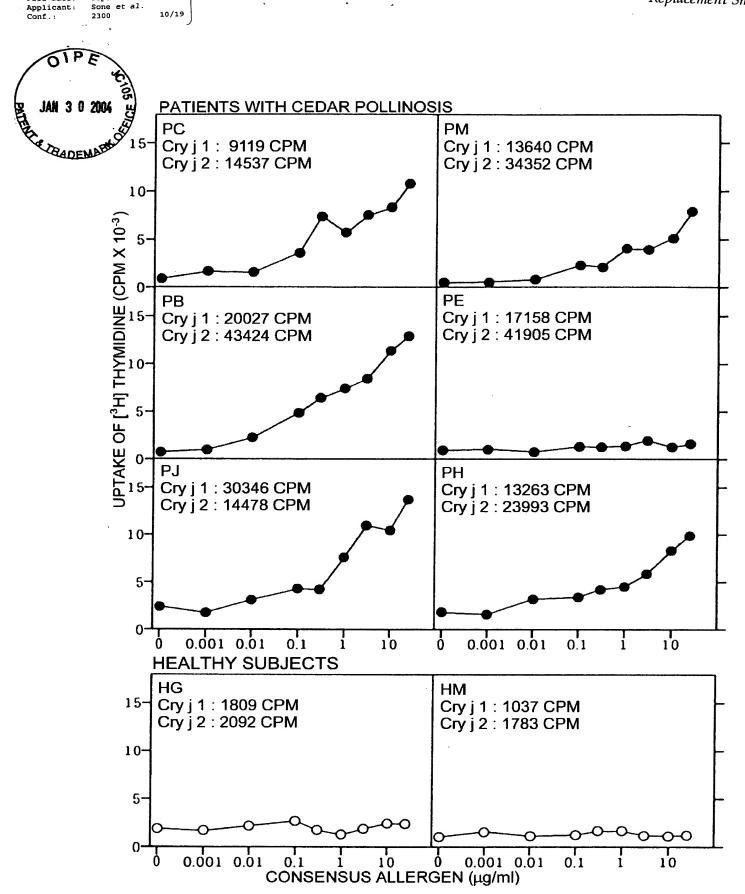


FIG. 9



09/142,524 September 9, 1998

File Date:

FIG. 10

SN: 09/142,524
File Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 11/19

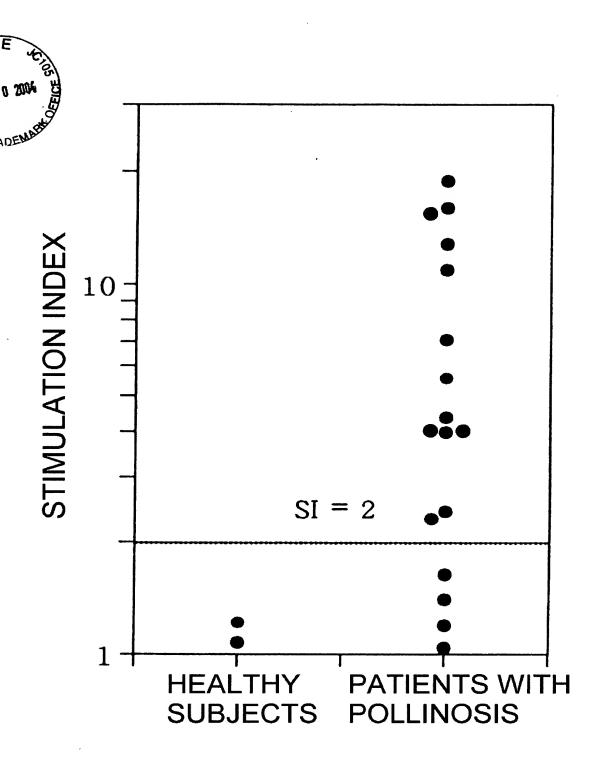


FIG. 11



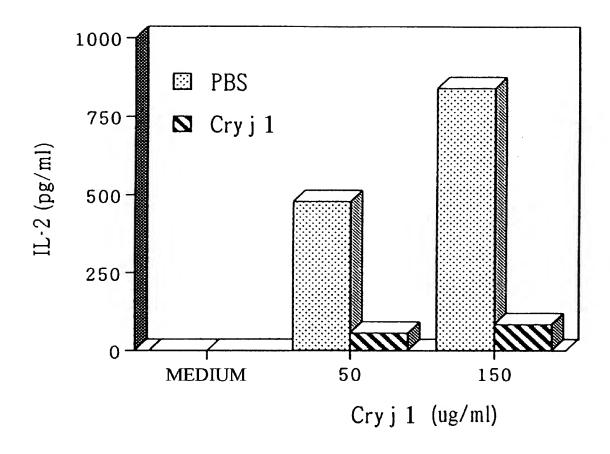


FIG. 12

SN: 09/142,524
File Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 13/1:

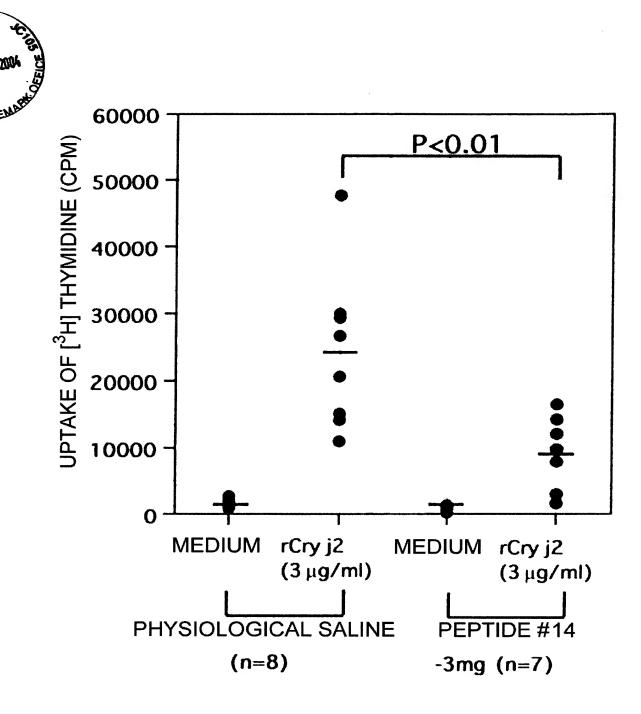


FIG. 13



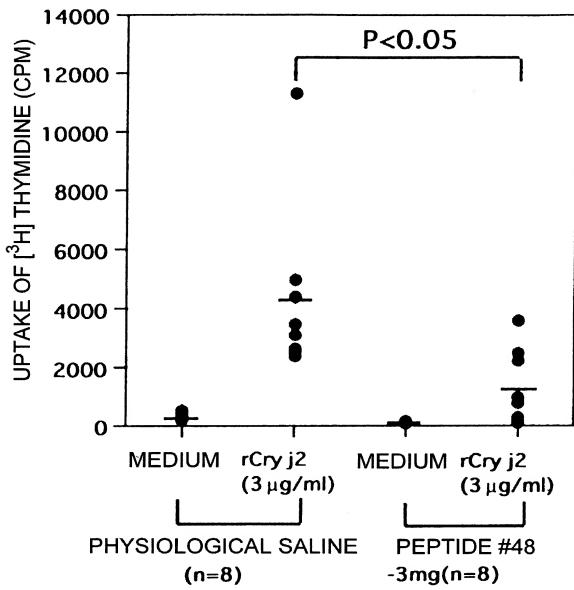


FIG. 14



## T CELL CLONE

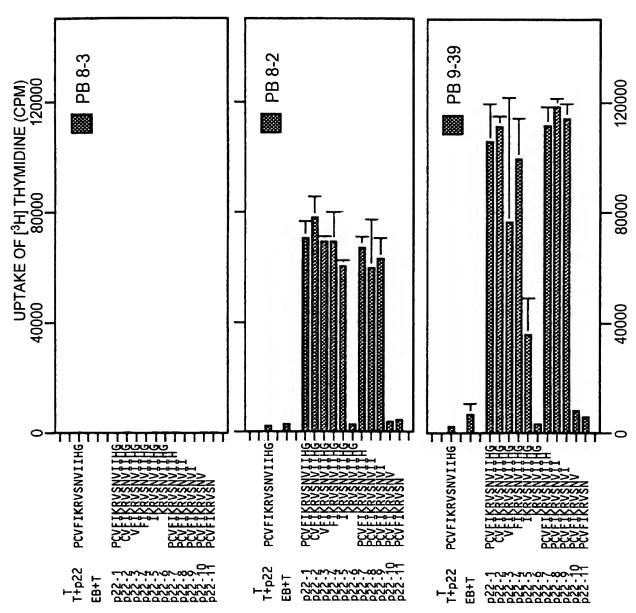


FIG. 15 (1)

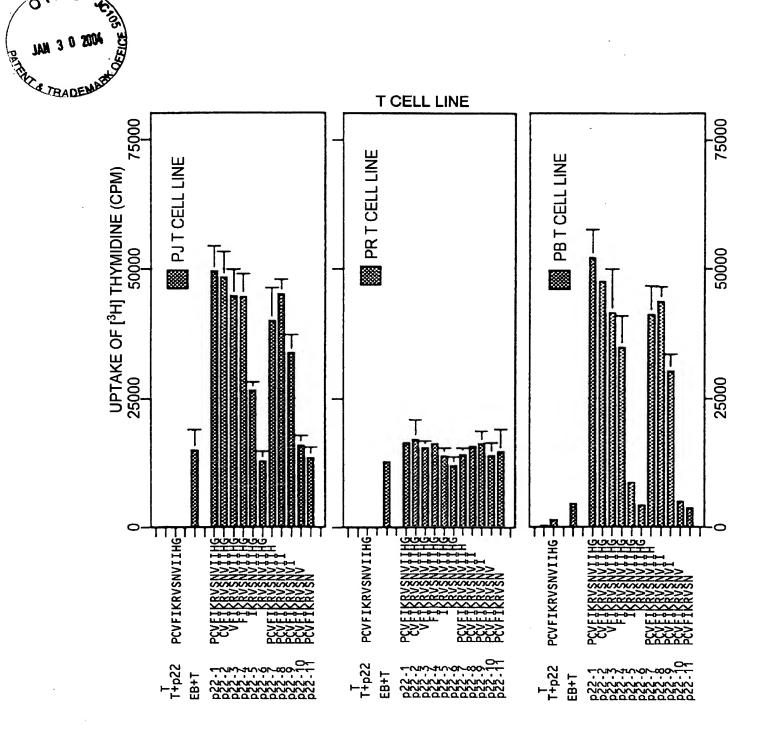


FIG. 15 (2)

SN: 09/142,524
Pile Date: September 9, 1998
Applicant: Sone et al.
Conf.: 2300 17/19

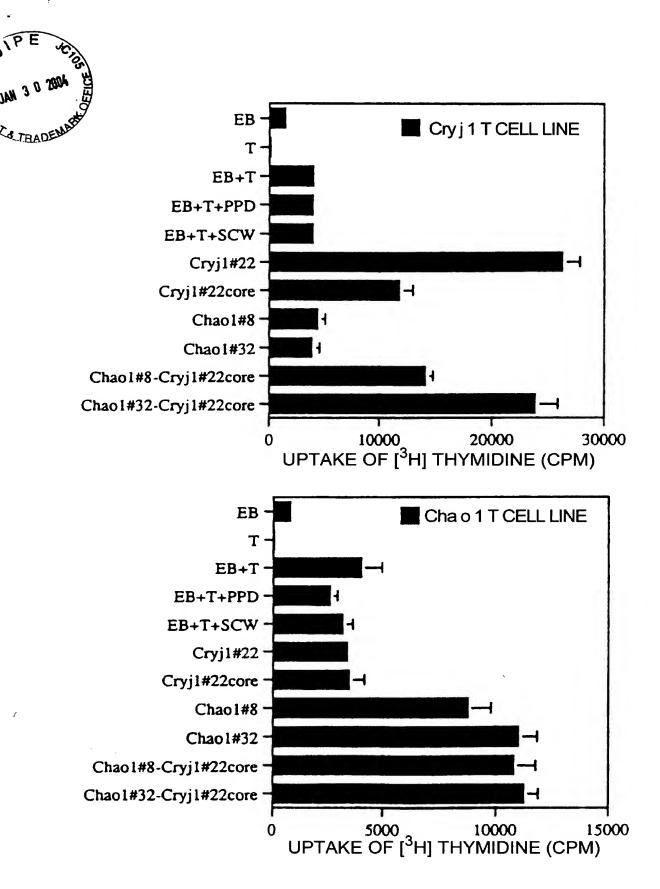


FIG. 16



18/19

SN: File Date:

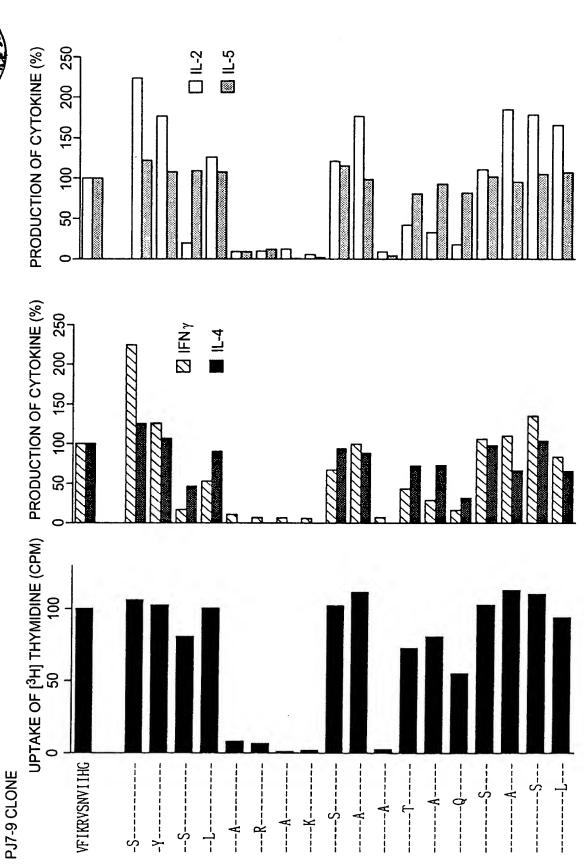


FIG. 17

